

=&gt; d que 133

L31 1615 SEA FILE=HCAPLUS ABB=ON PLU=ON GLUTENINS+OLD/CT  
 L32 22 SEA FILE=HCAPLUS ABB=ON PLU=ON L31(L)MODIF?  
 L33 3 SEA FILE=HCAPLUS ABB=ON PLU=ON L32 AND (CYS OR CYSTE?) 3

} looking for  
modified  
glutenins  
Cites

=&gt; d que 137

L1 136 SEA FILE=HCAPLUS ABB=ON PLU=ON APPELS R?/AU  
 L2 166 SEA FILE=HCAPLUS ABB=ON PLU=ON MORELL M?/AU  
 L3 145 SEA FILE=HCAPLUS ABB=ON PLU=ON BEKES F?/AU  
 L4 97 SEA FILE=HCAPLUS ABB=ON PLU=ON TAMAS L?/AU  
 L5 500 SEA FILE=HCAPLUS ABB=ON PLU=ON (L1 OR L2 OR L3 OR L4)  
 L6 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L5 AND MODIF? PROTEIN  
 L7 27 SEA FILE=REGISTRY ABB=ON PLU=ON (254972-99-1/BI OR 255362-64-2/BI OR 255362-65-3/BI OR 255362-66-4/BI OR 255362-67-5/BI OR 255362-68-6/BI OR 255362-69-7/BI OR 255362-70-0/BI OR 255362-71-1/BI OR 255362-72-2/BI OR 255362-73-3/BI OR 255362-74-4/BI OR 255362-75-5/BI OR 255363-63-4/BI OR 255363-64-5/BI OR 255363-65-6/BI OR 255363-66-7/BI OR 255363-67-8/BI OR 255363-68-9/BI OR 255363-69-0/BI OR 255363-70-3/BI OR 255363-71-4/BI OR 255363-72-5/BI OR 255363-73-6/BI OR 255363-74-7/BI OR 255363-75-8/BI OR 9032-08-0/BI)  
 L36 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 AND L7  
 L37 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L6 OR L36

} In ventur  
search

2 cites w/ 27 opds displayed

=&gt; d que 138

L8 4 SEA FILE=REGISTRY ABB=ON PLU=ON "CYS7CYS236"  
 L38 1 SEA FILE=HCAPLUS ABB=ON PLU=ON L8

1 citation just looking for this  
fragment in File Reg

=&gt; s 133 or 137 or 138

L39 4 L33 OR L37 OR L38

=&gt; d ibib abs hitstr ind 1-4

L39 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2002:796353 HCAPLUS

DOCUMENT NUMBER: 138:254137

TITLE: Chain Extension and Termination as a Function of Cysteine Content and the Length of the Central Repetitive Domain in Storage Proteins

AUTHOR(S): Tamas, Laszlo; Gras, Peter W.; Solomon, Robert G.; Morell, Matthew K.; Appels, Rudi; Bekes, Ferenc

CORPORATE SOURCE: CSIRO Plant Ind., Canberra, 2601, Australia  
SOURCE: Journal of Cereal Science (2002), 36(3), 313-325  
CODEN: JCSCDA; ISSN: 0733-5210

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Analog glutenin proteins (ANGs) based on the barley seed storage protein C-hordein, modified to contain N- and/or C-terminal **cysteine** residues and varying lengths of repetitive domain, have been purified from a bacterial expression system. The proteins were used to modify the mixing, extension and baking properties of wheat flour doughs in small-scale tests. Comparison of the effects of simple addn. of the proteins vs. their chem. incorporation into the glutenin macropolymer has allowed us to assess the importance of **cysteine** content, **cysteine** position and repetitive domain length in detg. dough mixing and processing properties. When incorporated, the proteins, along

with small synthetic oligopeptides based on their N- and C-terminal sequences, change the amt. of large glutenin polymers, and hence dough properties, in ways consistent with their action as either chain terminators (polypeptides with single **cysteine** residues) or chain extenders (polypeptides with two **cysteine** residues, one in either terminal domain). The gross effects of chain extension and termination may be further fine-tuned by modification of the mol. size of the incorporated proteins through alteration of their repetitive domains.

CC 17-11 (Food and Feed Chemistry)

ST dough rheol modified glutenin

IT Dough

Food rheology

(modified glutenin analogs and effect on wheat dough rheol.)

IT **Glutenins**

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(**modified; modified** glutenin analogs and effect on wheat dough rheol.)

IT 502959-03-7 502959-04-8 502959-05-9 502959-06-0

RL: BSU (Biological study, unclassified); BIOL (Biological study)

(chain extender for modification of glutenin analogs and study of effect on wheat dough rheol.)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2001:330569 HCAPLUS

DOCUMENT NUMBER: 135:272163

TITLE: Modification of chain termination and chain extension properties by altering the density of **cysteine** residues in a model molecule: Effects on dough quality  
AUTHOR(S): Tamas, L.; Bekes, F.; Gras, P. W.; Morell, M. K.; Appels, R.

CORPORATE SOURCE: CSIRO Plant Industry, Canberra, ACT 2601, Australia  
SOURCE: Special Publication - Royal Society of Chemistry (2000), 261(Wheat Gluten), 258-261

CODEN: SROCD0; ISSN: 0260-6291

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Functional studies on purified proteins were conducted using pilot scale testers and micro-baking technol. Elasticity and extensibility data on seven engineered polypeptides, different d. of **cysteine** residues, were presented and compared. Analog glutenin (ANG) proteins with one or two **cysteine** residues at both ends increased mixing time (MT) and decreased breakdown in resistance (BDR), suggesting greater strength. The functional property of odd nos. of **cysteine** residue contg. ANG proteins were studied and the MT of the dough was considerably decreased compared to the control dough sample. Polypeptides decreased the extensibility, and while increasing the size distribution, the loaf height (LH) values also increased. However, ANG contg. odd nos. of **cysteine** residue had increased the extensibility and decreased the LH. The gluten structure and dough characteristics were affected by the no. and distribution of **cysteine** residues within storage proteins. The combination of protein engineering and small-scale functional studies is a powerful tool for exploring structure/function relationships in gluten proteins.

CC 17-11 (Food and Feed Chemistry)

ST glutenin **cysteine** residue dough

IT Dough

## Food elasticity

(modification of chain termination and chain extension properties by altering d. of **cysteine** residues in a model mol. in relation to dough quality)

IT **Glutenins**

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)

(modification of chain termination and chain extension properties by altering d. of **cysteine** residues in a model mol. in relation to dough quality)

IT 52-90-4, **Cysteine**, biological studies

RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)

(modification of chain termination and chain extension properties by altering d. of **cysteine** residues in a model mol. in relation to dough quality)

REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:825319 HCAPLUS

DOCUMENT NUMBER: 134:115042

TITLE: Basic rheology of bread dough with **modified protein** content and glutenin-to-gliadin ratios

AUTHOR(S): Uthayakumaran, S.; Newberry, M.; Keentok, M.; Stoddard, F. L.; **Bekes, F.**

CORPORATE SOURCE: Quality Wheat Cooperative Research Centre Ltd., North Ryde, 1670, Australia

SOURCE: Cereal Chemistry (2000), 77(6), 744-749

CODEN: CECHAF; ISSN: 0009-0352

PUBLISHER: American Association of Cereal Chemists

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The uniaxial elongational and shear rheol. of doughs varying in either the protein content or glutenin-to-gliadin ratio were investigated.

Increasing the protein content at const. glutenin-to-gliadin ratio increased the strain-hardening properties of the dough, as shown by increasing elongational rupture viscosity and rupture stress. Glutenin and gliadin had a more complex effect on the elongational properties of the dough. Increased levels of glutenin increased the rupture viscosity but lowered the rupture strain, while elevated gliadin levels lowered the rupture viscosity but increased the rupture strain. These observations provide rheol. support for the widely inferred role of gliadin and glutenin in shaping bread dough rheol., namely that gliadin contributes the flow properties, and glutenin contributes the elastic or strength properties. The shear and elongational properties of the doughs were quite different, reflecting the dissimilar natures of these two types of flow. Increasing protein content lowered the max. shear viscosity, while increasing the glutenin-to-gliadin ratio increased max. shear viscosity. Strong correlations between the results of basic and empirical rheol. were found. These basic, or fundamental, rheol. measurements confirmed prior empirical studies and supported baking industry experience, highlighting the potential of basic rheol. for bread and wheat research.

CC 17-11 (Food and Feed Chemistry)

ST rheol bread dough protein glutenin gliadin

IT Dough

Food rheology

(bread dough rheol. response to protein content and glutenin-to-gliadin ratio)

IT Gliadins

## Glutenins

## Glutens

Proteins, general, biological studies

RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)

(bread dough rheol. response to protein content and glutenin-to-gliadin ratio)

REFERENCE COUNT: 32 THERE ARE 32 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L39 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS

ACCESSION NUMBER: 2000:53704 HCAPLUS

DOCUMENT NUMBER: 132:103748

TITLE: Glutenin seed storage proteins modified to contain lipid or starch binding domains

INVENTOR(S): Appels, Rudi; Morell, Matthew; Bekes, Frank; Tamas, Laszlo

PATENT ASSIGNEE(S): Commonwealth Scientific and Industrial Research Organisation, Australia; Goodman Fielder Limited; Groupe Limagrain Pacific Pty. Ltd.

SOURCE: PCT Int. Appl., 77 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

## PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000002914	A1	20000120	WO 1999-AU563	19990712
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2337685	AA	20000120	CA 1999-2337685	19990712
AU 9947630	A1	20000201	AU 1999-47630	19990712
EP 1127066	A1	20010829	EP 1999-930937	19990712
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002520009	T2	20020709	JP 2000-559143	19990712
PRIORITY APPLN. INFO.: AU 1998-4604 A 19980710				
WO 1999-AU563 W 19990712				
AB A modified glutenin or seed-storage protein is modified by adding to the protein a domain which confers to the <b>modified protein</b> the ability to incorporate into gluten or bind a ligand or other macromol. Thus, the gene selected to construct vectors for such fusion proteins coded for C hordein, a storage protein from barley endosperm and characterized by an absence of <b>cysteine</b> residues. Lipid-binding domains were constructed from (1) barley oleosin, (2) wheat CM16 or CM17 proteins, or (3) puroindoline A; a starch-binding domain was obtained from glucoamylase of <i>Aspergillus niger</i> . The modified fusion proteins were expressed in recombinant wheat. Such proteins have uses in the prepn. of food products or non-food products.				
IT 254972-99-IDP, <b>modified protein</b> contg.				
255362-66-4DP, <b>modified protein</b> contg.				

255362-68-6DP, modified protein contg.

255362-70-0DP, modified protein contg.

255362-72-2DP, Glutenin CM16 (wheat fragment), modified protein contg. 255362-73-3DP, Glutenin CM17 (wheat fragment), modified protein contg.

255362-74-4DP, Puroindoline (wheat isoform A fragment), modified protein contg.

RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)

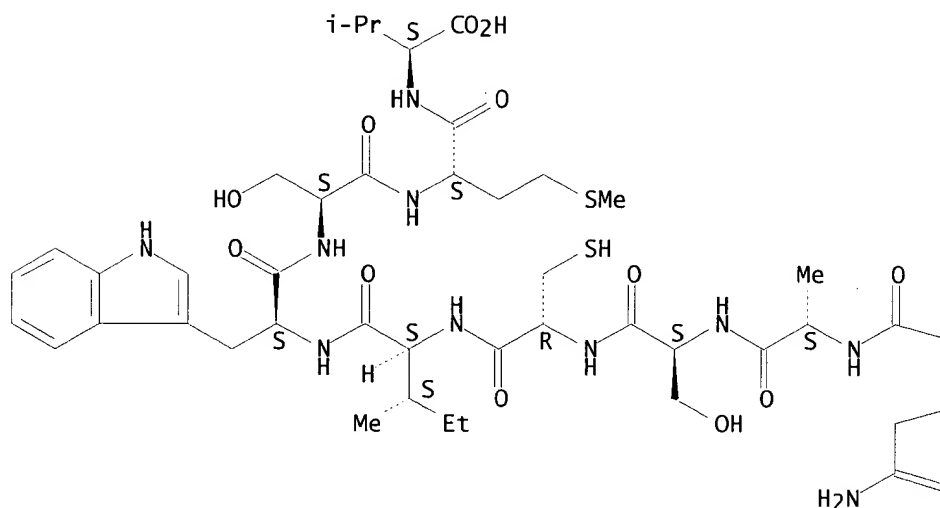
(amino acid sequence; glutenin seed storage proteins modified to contain lipid or starch binding domains)

RN 254972-99-1 HCAPLUS

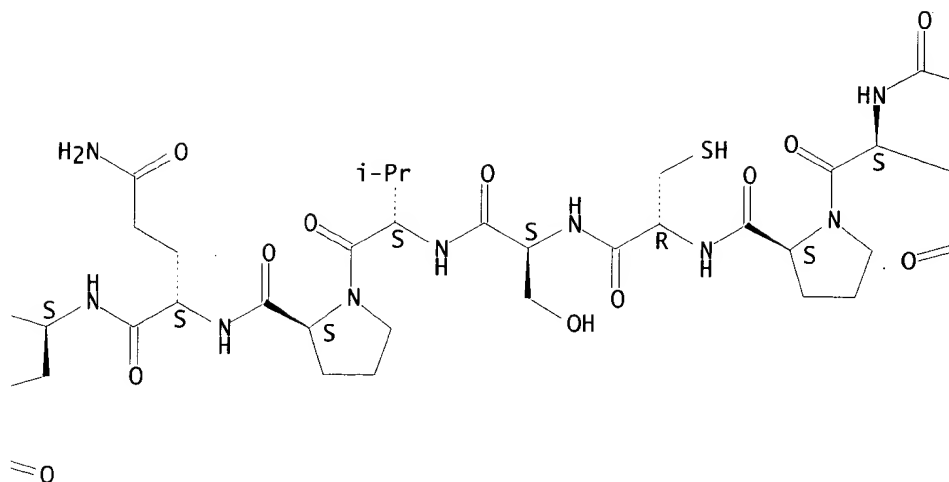
CN L-Valine, L-methionyl-L-arginyl-L-glutaminyl-L-leucyl-L-asparaginyll-L-prolyl-L-cysteinyl-L-seryl-L-valyl-L-prolyl-L-glutaminyl-L-glutaminyl-L-alanyl-L-seryl-L-cysteinyl-L-isoleucyl-L-tryptophyl-L-seryl-L-methionyl-(9CI) (CA INDEX NAME)

Absolute stereochemistry.

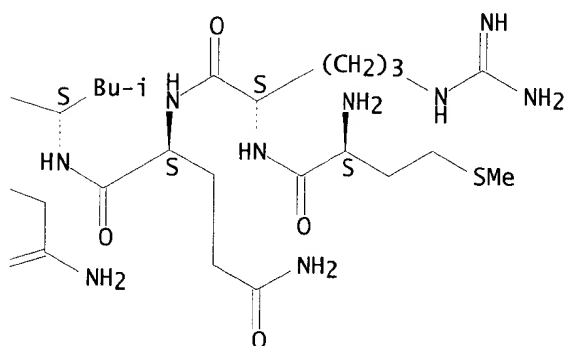
PAGE 1-A



PAGE 1-B



PAGE 1-C



RN 255362-66-4 HCAPLUS

CN Oleosin (synthetic consensus clone pGEM-OHBP fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-68-6 HCAPLUS

CN Hordein C (barley clone ANG.DELTA.Cys7Cys236 fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-70-0 HCAPLUS

CN Amylase, gluco- (Aspergillus niger clone pGEM-SBD isoenzyme 1 fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-72-2 HCAPLUS

CN Glutenin CM16 (wheat fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-73-3 HCAPLUS

CN Glutenin CM17 (wheat fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-74-4 HCAPLUS

CN Puroindoline (wheat isoform A fragment) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 255362-64-2DP, synthetic gene contg. 255362-65-3DP, synthetic gene contg. 255362-67-5DP, synthetic gene contg. 255362-69-7DP, synthetic gene contg. 255362-71-1DP, synthetic gene contg. 255362-75-5DP, synthetic gene contg.  
 RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses) (nucleotide sequence; glutenin seed storage proteins modified to contain lipid or starch binding domains)

RN 255362-64-2 HCAPLUS

CN DNA (barley clone pJANG.DELTA.Cys7Cys236 hordein C N-terminal fragment substitution deriv.-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-65-3 HCAPLUS

CN DNA (synthetic consensus clone pGEM-OHBP oleosin fragment-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-67-5 HCAPLUS

CN DNA (barley clone ANG.DELTA.Cys7Cys236 hordein C fragment-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-69-7 HCAPLUS

CN DNA (Aspergillus niger clone pGEM-SBD glucoamylase isoenzyme 1 fragment-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-71-1 HCAPLUS

CN DNA (wheat glutenin CM16 fragment-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255362-75-5 HCAPLUS

CN DNA (wheat puroindoline isoform A fragment-specifying) (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 9032-08-0, Glucoamylase

RL: BSU (Biological study, unclassified); BIOL (Biological study) (starch-binding domain from; glutenin seed storage proteins modified to contain lipid or starch binding domains)

RN 9032-08-0 HCAPLUS

CN Amylase, gluco- (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

IT 255363-63-4, 1: PN: W00002914 SEQID: 1 unclaimed DNA  
 255363-64-5, 2: PN: W00002914 SEQID: 2 unclaimed DNA  
 255363-65-6, 3: PN: W00002914 SEQID: 3 unclaimed DNA  
 255363-66-7, 4: PN: W00002914 SEQID: 4 unclaimed DNA  
 255363-67-8, 5: PN: W00002914 SEQID: 5 unclaimed DNA  
 255363-68-9, 6: PN: W00002914 SEQID: 6 unclaimed DNA

255363-69-0, 7: PN: W00002914 SEQID: 7 unclaimed DNA  
255363-70-3, 8: PN: W00002914 SEQID: 8 unclaimed DNA  
255363-71-4, 9: PN: W00002914 SEQID: 9 unclaimed DNA  
255363-72-5 255363-73-6 255363-74-7  
255363-75-8

RL: PRP (Properties)

(unclaimed nucleotide sequence; glutenin seed storage proteins modified  
to contain lipid or starch binding domains)

RN 255363-63-4 HCAPLUS

CN 1: PN: W00002914 SEQID: 1 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-64-5 HCAPLUS

CN 2: PN: W00002914 SEQID: 2 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-65-6 HCAPLUS

CN 3: PN: W00002914 SEQID: 3 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-66-7 HCAPLUS

CN 4: PN: W00002914 SEQID: 4 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-67-8 HCAPLUS

CN 5: PN: W00002914 SEQID: 5 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-68-9 HCAPLUS

CN 6: PN: W00002914 SEQID: 6 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-69-0 HCAPLUS

CN 7: PN: W00002914 SEQID: 7 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-70-3 HCAPLUS

CN 8: PN: W00002914 SEQID: 8 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-71-4 HCAPLUS

CN 9: PN: W00002914 SEQID: 9 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-72-5 HCAPLUS

CN 10: PN: W00002914 SEQID: 10 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-73-6 HCAPLUS

CN 11: PN: W00002914 SEQID: 11 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-74-7 HCAPLUS

CN 12: PN: W00002914 SEQID: 12 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

RN 255363-75-8 HCAPLUS

CN 13: PN: W00002914 SEQID: 13 unclaimed DNA (9CI) (CA INDEX NAME)

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*



IC ICM C07K014-38  
ICS A21D002-38; A23L001-10

CC 3-2 (Biochemical Genetics)  
Section cross-reference(s): 6, 17, 48

ST storage protein modification lipid starch binding domain; glutenin  
modification lipid starch binding domain; hordein modification lipid  
starch binding domain; sequence hordein modification gene lipid starch  
binding

IT Hordeins  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other  
use, unclassified); PRP (Properties); BIOL (Biological study); PREP  
(Preparation); USES (Uses)  
(C; glutenin seed storage proteins modified to contain lipid or starch  
binding domains).

IT **Glutenins**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(CM16, lipid-binding domain from; glutenin seed storage proteins  
**modified** to contain lipid or starch binding domains)

IT **Glutenins**  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(CM17, lipid-binding domain from; glutenin seed storage proteins  
**modified** to contain lipid or starch binding domains)

IT Bakery products  
(cakes; glutenin seed storage proteins modified to contain lipid or  
starch binding domains)

IT Proteins, specific or class  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other  
use, unclassified); PRP (Properties); BIOL (Biological study); PREP  
(Preparation); USES (Uses)  
(chloroform/methanol-sol.; glutenin seed storage proteins modified to  
contain lipid or starch binding domains)

IT Proteins, specific or class  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other  
use, unclassified); PRP (Properties); BIOL (Biological study); PREP  
(Preparation); USES (Uses)  
(friabins; glutenin seed storage proteins modified to contain lipid or  
starch binding domains)

IT Adhesives  
Bread  
Breakfast cereal  
Coating materials  
Construction materials  
DNA sequences  
Films  
Food  
Packaging materials  
Pasta  
Protein engineering  
Protein sequences  
(glutenin seed storage proteins modified to contain lipid or starch  
binding domains)

IT Synthetic gene  
RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified);  
PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(glutenin seed storage proteins modified to contain lipid or starch  
binding domains)

IT Gliadins  
**Glutenins**  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other  
use, unclassified); PRP (Properties); BIOL (Biological study); PREP

- (Preparation); USES (Uses)  
(glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Proteins, specific or class  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(grain-softness; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT **Glutenins**  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(high-mol.-wt.; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT **Glutenins**  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(low-mol.-wt.; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Proteins, specific or class  
RL: BSU (Biological study, unclassified); BIOL (Biological study)  
(oleosins, hydrophobic binding domain from; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Bakery products  
(pastries; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Proteins, specific or class  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(puroindolines; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Food  
(snack; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Proteins, specific or class  
RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)  
(storage; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT Animal cell  
Bacteria (Eubacteria)  
Escherichia coli  
Pichia  
Plant cell  
Saccharomyces cerevisiae  
Wheat  
Yeast  
(transgenic expression system; glutenin seed storage proteins **modified** to contain lipid or starch binding domains)
- IT 254972-99-1DP, **modified protein contg.**  
255362-66-4DP, **modified protein contg.**  
255362-68-6DP, **modified protein contg.**  
255362-70-0DP, **modified protein contg.**  
255362-72-2DP, Glutenin CM16 (wheat fragment), **modified protein contg.** 255362-73-3DP, Glutenin CM17 (wheat fragment), **modified protein contg.**

255362-74-4DP, Puroindoline (wheat isoform A fragment),  
modified protein contg.

RL: BPN (Biosynthetic preparation); FFD (Food or feed use); NUU (Other use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses)

(amino acid sequence; glutenin seed storage proteins modified to contain lipid or starch binding domains)

IT 255362-64-2DP, synthetic gene contg. 255362-65-3DP, synthetic gene contg. 255362-67-5DP, synthetic gene contg. 255362-69-7DP, synthetic gene contg. 255362-71-1DP, synthetic gene contg. 255362-75-5DP, synthetic gene contg. RL: BPN (Biosynthetic preparation); BUU (Biological use, unclassified); PRP (Properties); BIOL (Biological study); PREP (Preparation); USES (Uses) (nucleotide sequence; glutenin seed storage proteins modified to contain lipid or starch binding domains)

IT 9032-08-0, Glucoamylase RL: BSU (Biological study, unclassified); BIOL (Biological study) (starch-binding domain from; glutenin seed storage proteins modified to contain lipid or starch binding domains)

IT 255363-63-4, 1: PN: W00002914 SEQID: 1 unclaimed DNA  
255363-64-5, 2: PN: W00002914 SEQID: 2 unclaimed DNA  
255363-65-6, 3: PN: W00002914 SEQID: 3 unclaimed DNA  
255363-66-7, 4: PN: W00002914 SEQID: 4 unclaimed DNA  
255363-67-8, 5: PN: W00002914 SEQID: 5 unclaimed DNA  
255363-68-9, 6: PN: W00002914 SEQID: 6 unclaimed DNA  
255363-69-0, 7: PN: W00002914 SEQID: 7 unclaimed DNA  
255363-70-3, 8: PN: W00002914 SEQID: 8 unclaimed DNA  
255363-71-4, 9: PN: W00002914 SEQID: 9 unclaimed DNA  
255363-72-5 255363-73-6 255363-74-7

255363-75-8

RL: PRP (Properties)

(unclaimed nucleotide sequence; glutenin seed storage proteins modified to contain lipid or starch binding domains)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT